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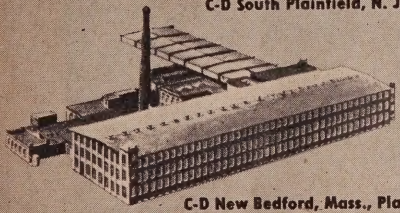

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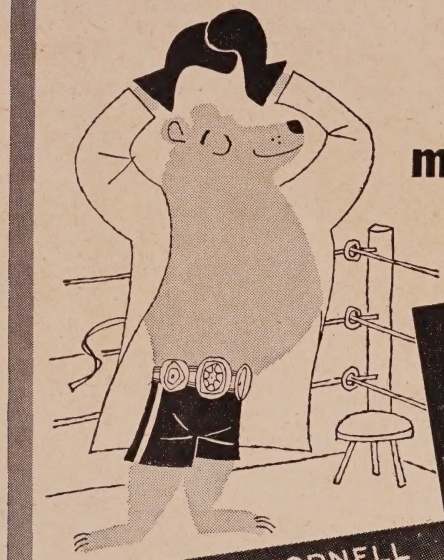

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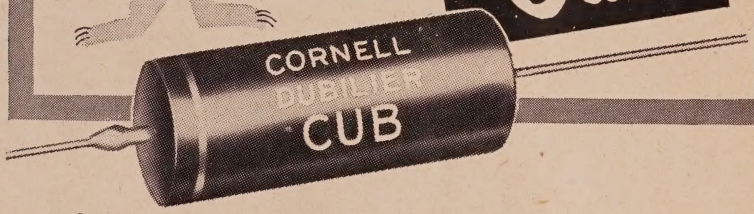

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AN IMPROVED 150-WATT PHONE-C. W. SUPERMODULATED TRANSMITTER

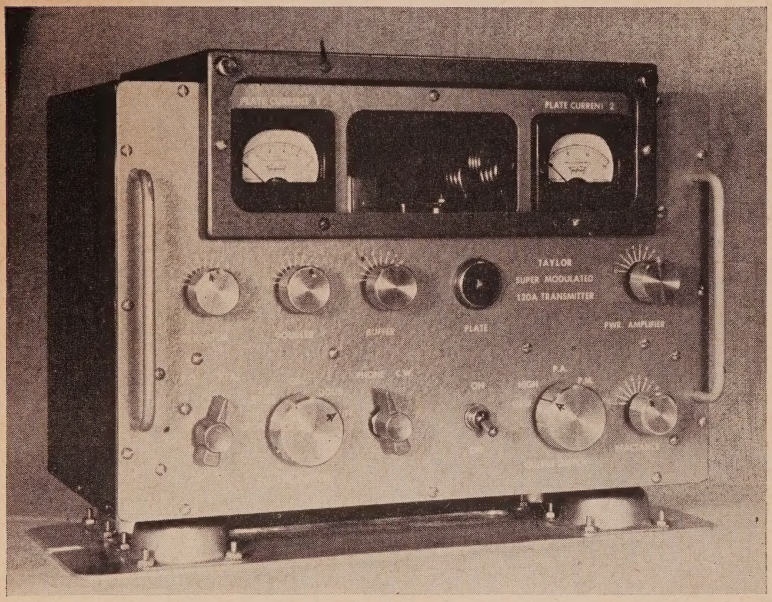


FIG. 1. EXTERNAL VIEW OF THE SUPERMODULATED 807W TRANSMITTER
The two milliammeters are mounted behind a Plexiglas window which displays also the tubes and final amplifier tank coils. See Figure 6 for identification of controls.

The Taylor system of supermodulation now is fairly well known. It differs from conventional high-level AM modulation systems in that an audio-frequency modulator is not employed. Instead, the final amplifier has two r. f. tubes. One, called the power amplifier, or "PA", continuously supplies the carrier. The other, called the power modulator, or "PM", is triggered into operation by the speech amplifier and supplies to the final tank the amount of r. f. power needed to boost the r. f. peaks to the amplitudes corresponding to 100% amplitude modulation. Large economies without

ERRATUM

It has been called to our attention that the term "MICROVOLTER" was incorrectly used by us in our June, 1953, issue, to indicate a type of instrument, whereas in fact this term is the registered trade mark of Ferris Instrument Company and can properly be applied only to its brand of electrical instruments.

We regret our inadvertent misuse of the term and suggest to our readers that in the future care be taken not to use this term except in connection with instruments originating with Ferris Instrument Company. — Editor.

reduced efficiency are obtained by thus dispensing with the conventional modulator and its power supply.

Its characteristic audio potency makes the signal from a supermodulated transmitter sound like one having several times its actual carrier power. This is important when working DX with limited power and when attempting to penetrate interference. More receiving operators are taking notice of supermodulated signals.

The increased "talk power" plus the fact that the Taylor system allows efficient amplitude modulation to be obtained in the most economical manner, is attracting the attention of operators of low-powered transmitters. In the supermodulated low-powered transmitter, exceptional performance can be obtained with economy of space and components. The transmitter described in this article embodies improvements not included in earlier circuits. Both c. w. and phone operation are provided. This present transmitter was designed and built by R. E. Taylor, W6FNX, inventor of the supermodulation system bearing his name. It has features which recommend its use by operators who prefer to remain in the 807 class and still obtain maximum performance and strong signals on phone.

New Features

The present transmitter employs a pair of 807W tubes in the PA and PM positions in the final amplifier. These improved tubes are unusually free from parasitics and are much smaller in size than the standard 807. The complete circuit diagram appears in Figure 3.

Maximum input power on both c. w. and phone is 150 watts.. The final amplifier input power may be reduced to 100 watts, when desired, by the flip of a switch (S_4 in Figure 3). This reduces input for both c. w. and phone. On phone, the available sideband power is unaffected when carrier power is reduced. Power reduction results from a decrease of screen voltage of the 807W PA tube when switch S_4 is thrown to its LO position.

Previous supermodulated transmitter circuits have employed shunt feed to the PA plate and series feed to the PM plate. Some confusion has resulted from that arrangement. An examination of Figure 3 will show that series feed is used on both 807Ws in this circuit. When switch S_4 is in its PA position, the screen of tube PM is disconnected from the voltage supply and tube PM is rendered inoperative. Meter M_2 then reads PA plate current only. Conversely, when S_4 is in its PM position, screen voltage is removed from tube PA which accordingly is put out of operation, and meter M_2 reads PM plate current only. After reading the separate plate currents, switch S_4 is set to HI or LO, whereupon meter M_2 reads total PA and PM plate currents. The transmitter is operated always with S_4 at HI or LO, depending upon the input power desired, since these are the only settings of the switch which allow both tubes to operate.

The CW-PHONE switch, S_3, reduces the bias of tube PM for c. w., so that this tube is in continuous operation without having to be triggered by the audio channel.

The exciter section uses miniature tubes throughout. Ten meter operation is obtained with a 20-meter crystal or 20-meter-output v. f. o. Twenty meter operation is secured with a 40-meter crystal or 40-meter-output v. f. o. When using an external v. f. o., the 6AK6 oscillator stage operates without difficulty as a straight-through amplifier. Forty and 80-meter coil designs have not been settled at the time of this writing, and will be reported in a later issue of "THE CAPACITOR" as soon as available.

Plate currents of the various exciter and audio stages are read by switching milliammeter M_1 successively across shunt resistors R_8, R_9, R_{13}, and R_{23}. The resistance values of these shunts have been calculated for a 0-1 d. c. milliammeter having an internal resistance of 105 ohms. They provide meter ranges of 0-10 ma. for the oscillator, 0-20 ma. for the doubler,

0-30 ma. for the buffer, 0-3 ma. for the total current reading of the two triode sections of the 12AX7 speech amplifier tube, and 0-50 ma. for the audio driver. Typical current readings for the various stages are: oscillator 6 ma., doubler 15 ma., buffer 25 ma., speech amplifier 2 ma. total, and audio driver 38 to 40 ma. If the reader employs a milliammeter having a full-scale current value other than 1 ma. and/or an internal resistance other than 105 ohms, new shunt resistance values must be calculated. Use the formula: $R_s = R_m/f-1$. R_s is the resistance required for the shunt, in ohms, R_m the internal resistance of the meter in ohms, and f is the factor by which the full-scale reading of the meter is to be multiplied. The shunts can be made by winding the proper length of Manganin resistance wire on small strips of insulating material. A much easier way is to use a small wirewound rheostat for the shunt, with a slotted shaft for screwdriver adjustment. The latter scheme probably will appeal to most amateurs, since an accurate resistance bridge is needed for best adjustment of the wire shunt.

The speech amplifier employs the two high-gain triode sections of the 12AX7 tube in cascade. With the gain control (R_{17}) at its maximum-gain setting, sufficient gain is available for "arm-length" talking into a crystal microphone.

When switch S_4 is in its OFF position, the entire final amplifier is silenced, but the exciter and audio stages remain in operation. This allows the exciter to be tuned-up

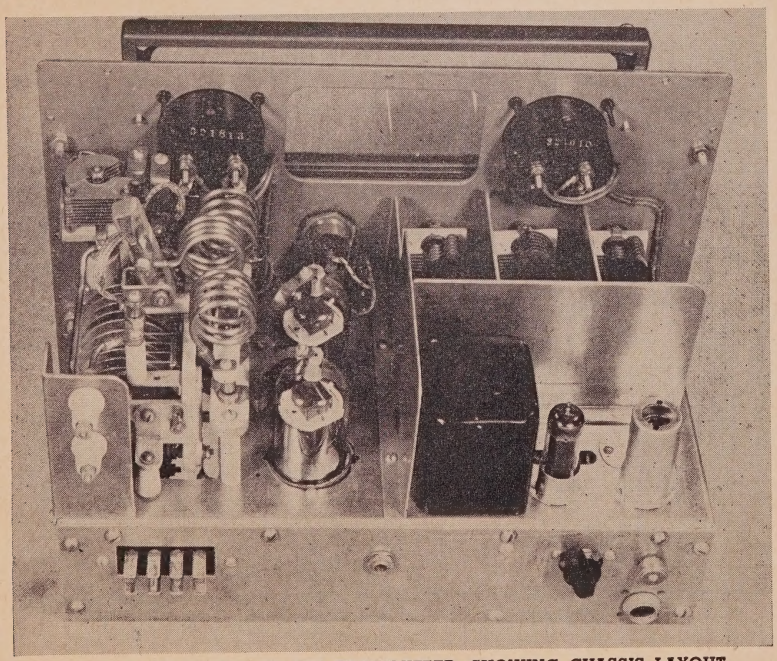


FIG. 2. INSIDE VIEW OF THE TRANSMITTER, SHOWING CHASSIS LAYOUT.
10-meter final amplifier coils are in place.

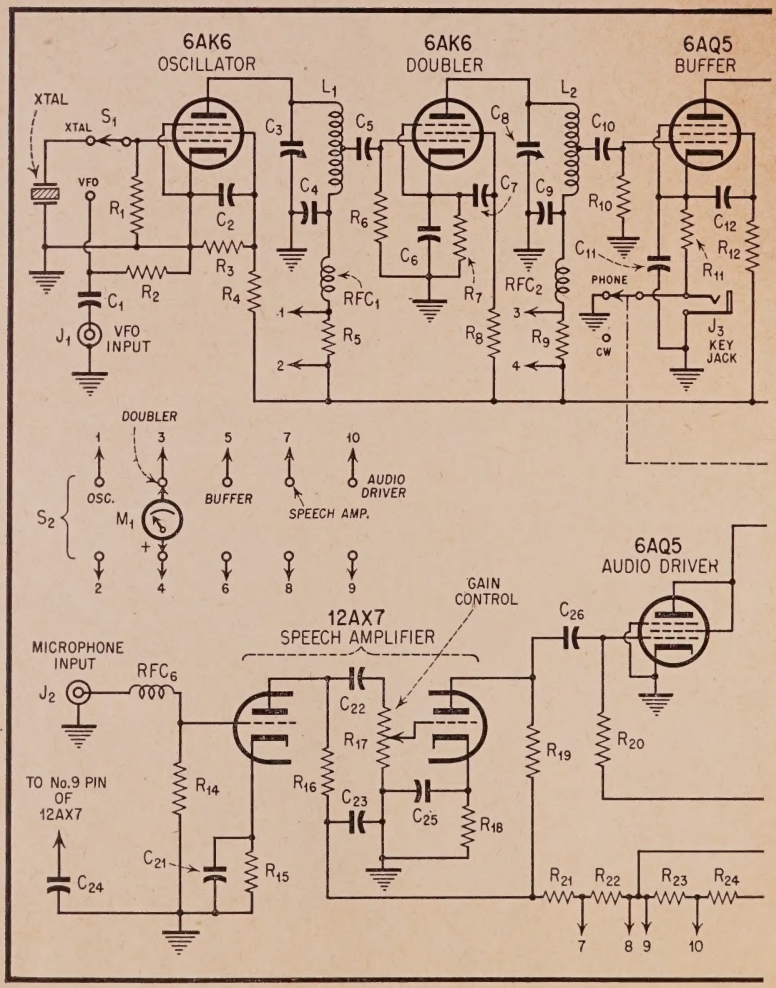


Fig. 3. Complete Circuit of the Supermodulated Transmitter.

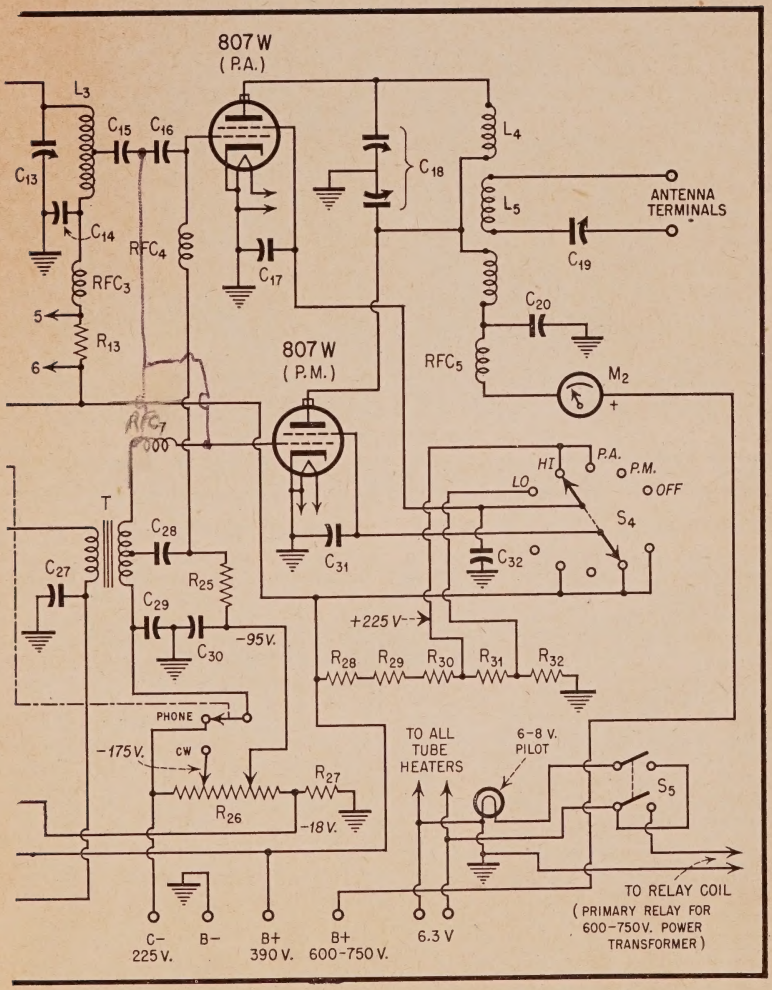


Fig. 3. Complete Circuit of the Supermodulated Transmitter.

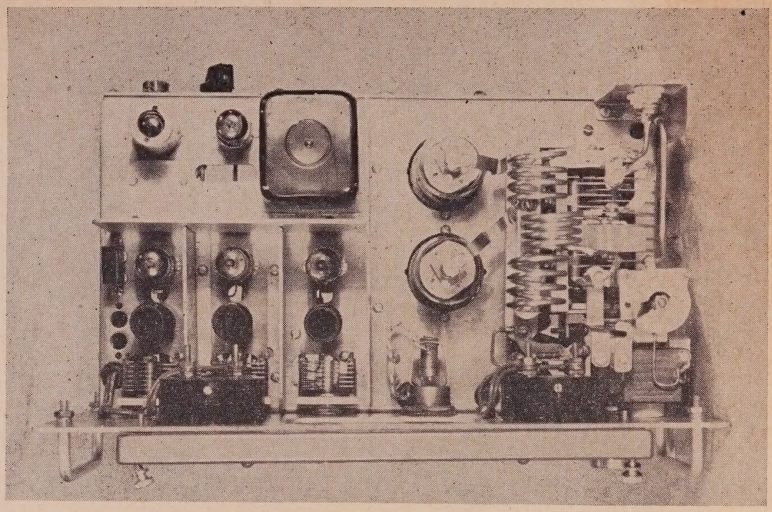


FIG. 4. TOP VIEW OF THE CHASSIS.

Speech amplifier and audio driver are in the shielded section in the upper left corner. The 3 exciter stages are in the three shielded sections in the lower left half. The entire right half of the chassis is occupied by the PA and PM stages of the final amplifier.

before applying voltages to the final amplifier. S_5 is the standby switch for muting the transmitter during receiving periods. The lower section of S_5 switches 6.3 volts a. c., derived from the tube heater supply, to a 6-volt a. c. relay which makes and breaks the primary circuit of the plate power transformer. Thus, the entire transmitter is placed out of operation when this switch is opened, only the tube heaters remaining powered. The upper section of S_5 switches-on the front-panel pilot lamp to signal activation of the transmitter.

Power Supply

The power supply for the transmitter must furnish 600 to 750 volts d. c. at 200 to 250 milliamperes; 390 volts d. c. at 125 ma.; negative 225 volts d. c. at 50 ma.; and 6.3 volts d. c. at 4 amperes.

Figure 7 shows an a. c.-operated power supply built for use with the transmitter. The conventional circuit is used, hence needs no detailed description here. A 5R4GY rectifier furnishes plate and screen voltages. Bias voltages are supplied by a transformer-operated selenium rectifier system. The power supply was made external to the transmitter for easy disconnection when a battery-operated portable power supply is to be used in the field. The latter consists of a 6-volt storage battery and dynamotor. An individual builder may include the a. c. power supply on a larger chassis together with the transmitter, if completely self-contained operation is preferred.

Construction

The transmitter, as shown in the photographs, is built on a 12″ x 7″ x 3½″ chassis and is enclosed in a 14″ x 9½″ x 7″ cabinet. While these dimensions have given the greatest compactness, they do not necessarily have to be followed closely. The layout can be spread out more, if desired, provided the usual care is taken to avoid long leads.

It is essential that the exciter, final amplifier, and audio sections be shielded from each other, both above and below the chassis. In addition, top-chassis shields are provided between each exciter stage. Figures 2 and 4 show the simple placement of baffle shields on top of the chassis, and Figure 5 shows shield partitions below chassis. The 12AX7 speech amplifier is the only tube requiring an independent shield (See Figure 2). The 807Ws require no shields, but their sockets are mounted below the chassis so as to bring the bottom of the tube plates even with the top of the chassis. ⅜"-wide flat copper strip is used to connect the 807W plate top-caps to the plug-in base for the final amplifier tank coil.

The audio gain control, R_{17}, is mounted on the rear lip of the chassis (See Figure 2), since this control has been found not to need frequent readjustment. There is no objection, however, to mounting R_{17} on the front panel, provided an extension shaft is used to place this potentiometer close to the 12AX7 tube socket. Examination of Figure 2 shows that the key, microphone, and v. f. o. jacks also are mounted on the rear lip of the chassis.

The builder must adhere religiously to the rule of making **one** solid ground connection to chassis in each stage. Return all grounds in a given stage to this one point, and later connect all of the separate stage-grounds together by means of a length of No. 12 solid wire. The 807W screens must be bypassed separately, **each at its own socket,** by means of C_{17} and C_{31}. The third screen bypass capacitor, C_{32}, is connected halfway along the length of the lead between switch S_4 and the screen of the PA 807W. One side of the 807W heater is grounded **at each socket,** as shown in Figure 3.

The final amplifier coils (L_4) each are wound in two halves which are spaced sufficiently well apart to allow the pickup coil, L_5, to be swung between them for coupling adjustment. The exciter coils, L_1 to L_3, are wound on small plug-in forms. The number of turns given for L_5 in the COIL TABLE works satisfactorily (in conjunction with output tuning capacitor

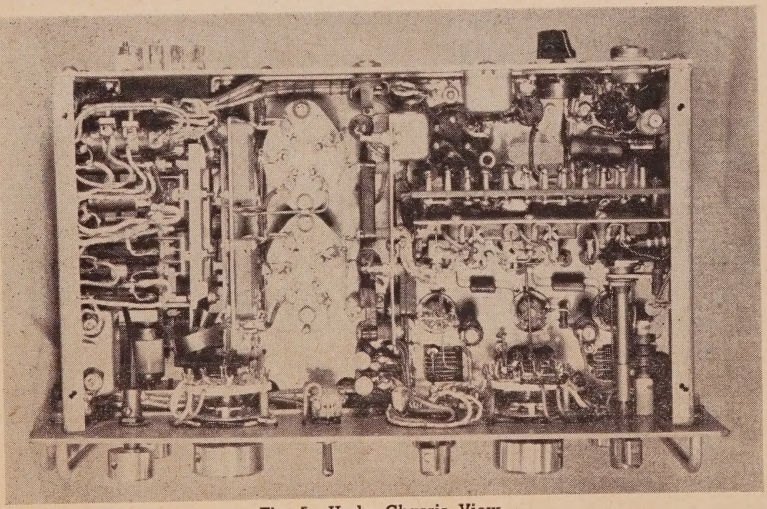


Fig. 5. Under-Chassis View.

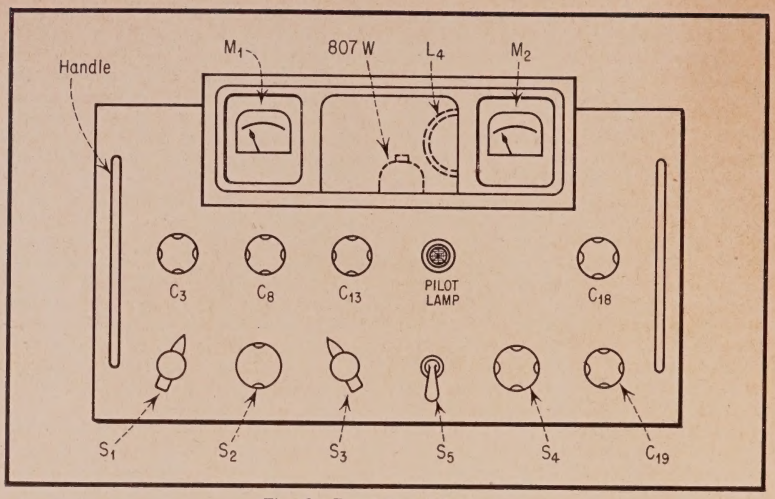


Fig. 6. Front Panel Layout.

C_{19}) with 50- and 72-ohm transmission lines. The number of turns must be changed experimentally for best loading when a transmission line of different impedance is used.

Tuning and Adjusting

After wiring has been verified as correct, the final amplifier bias voltages must be adjusted to specified values in the following manner: (1) Set switch S_4 to its OFF position. (2) Plug-in the 40-meter crystal and the complete set of coils for 20-meter operation (See COIL TABLE). (3) Set switch S_3 to its PHONE position. (4) Set gain control R_{17} to its minimum gain position. (5) Set switch S_1 to its XTAL position. (6) Set switch S_2 to its OSCILLATOR position. (7) Switch-on power. (8) After the tube heaters have come up to operating temperature, as indicated by deflection of meter M_1, tune C_3 for meter M_1 dip. (9) Switch S_2 to its DOUBLER position and tune C_8 for M_1 dip. (10) Switch S_2 to its BUFFER position and tune C_{13} for M_1 dip. (11) Using a high-resistance d. c. voltmeter, set the sliders on resistors R_{26} to give —175 v. and —95 v., respectively, between slider and ground, as indicated in Figure 3. The preliminary adjustment of the bias voltages now is completed. Final adjustment must be made, as will be explained later, after the final amplifier has been tuned.

Final amplifier tuning now may be undertaken. With the exciter stages still in operation, (1) Connect a 200-watt lamp, as a dummy load, to the ANTENNA terminals. (2) Swing coil L_5 completely out of coil L_4. (3) Set switch S_4 to its HI position. Meter M_2 now reads the total PA and PM plate currents. (4) Tune C_{18} for M_2 dip, and touch up the tuning of C_3, C_8, and C_{13} to improve this dip. (5) Swing-in coil L_5 in small steps, noting the increase in M_2 reading as the coupling is increased, and tune C_{19} for maximum brilliance of the lamp. (6) Work back and forth between C_{18} tuning for dip, and C_{19} tuning for maximum lamp brilliance. When the tuning is correct, M_2 dip and maximum lamp brilliance will occur at the same setting of C_{18}, and the M_2 reading will be in the vicinity of 130 milliamperes. (7) Plug the microphone into jack J_2, advance the setting of potentiometer

R_{17}, and whistle a sustained tone into the microphone. The M_2 reading should increase to 200 ma. (with 750 volts input to the final amplifier) and the lamp brilliance should increase. If the lamp dims on modulation, undesired downward modulation is taking place and indicates that steps 3 to 6 have not been performed correctly. (8) The final amplifier plate currents may be checked separately with switch S_4 in its PA or PM position as required. At 750 v., unmodulated PM plate current will be approximately 30 ma.; unmodulated PA plate current 100 ma. Under modulation, a slight decrease in PA plate current and a large increase in PM plate current will take place. (9) With switch S_4 in its HI position and the transmitter in operation, make final adjustment of the sliders on resistor R_{16} to bring the bias voltage values to the exact —175 v. and —95 v. levels indicated in Figure 3. USE MORE THAN ORDINARY CARE WHEN MAKING THESE ADJUSTMENTS TO PREVENT HARMFUL ELECTRIC SHOCK! (10) With switch S_4 in its HI position and the transmitter operating into the lamp load, check modulation percentage and speech quality by any one of the usual well-known methods. (11) Repeat the entire procedure (except bias voltage adjustment) with the 20-meter crystal and 10-meter coils. (12) Substitute the antenna for the lamp load and repeat transmitter tuning. A 0-1.5 or 0-2 thermocouple ammeter (or a lamp connected temporarily in series with one of the ANTENNA terminals and the transmission line) will serve as an output indicator when tuning C_{18} and swinging L_6 in and out of the tank coil.

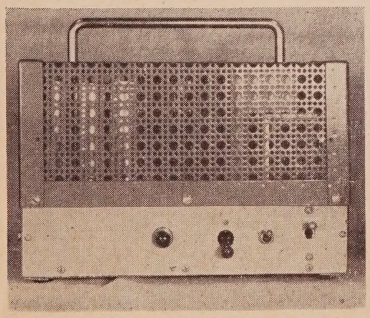


Fig. 7. Portable A. C. Power Supply for use with the Supermodulated Transmitter.

COIL TABLE

20-Meter Operation

40-Meter Crystal

L_1—**Oscillator.** 37 turns No. 18 enamelled wire on ¾"-diameter form. Winding length ¾". Tap 9th turn from B-plus end.

L_2—**Doubler.** 19 turns No. 18 enamelled wire on ¾"-diameter form. Winding length 1⅛". Tap 3rd turn from B-plus end.

L_3—**Buffer.** 16 turns No. 18 enamelled wire on ¾"-diameter form. Winding length 1⅛ inch. Tap 9th turn from B-plus end.

L_4—**Final Amplifier.** Each section 6 turns ⅛" o. d. copper tubing airwound 1¾" in diameter. Winding length 1⅝ inch. Separation between sections of coil ⅞ inch.

L_5—**Antenna Coupling.** (50 to 72 ohms). 4 turns ⅛" o. d. copper tubing airwound 1¾" in diameter. Winding length ⅝ inch.

10-Meter Operation

20-Meter Crystal

L_1—**Oscillator.** 16 turns No. 18 enamelled wire on ¾"-diameter form. Winding length 1⅛ inch. Tap 4th turn from B-plus end.

L_2—**Doubler.** 8 turns No. 18 enamelled wire on ¾"-diameter form. Winding length 1⅛ inch. Tap 1¼ turn from B-plus end.

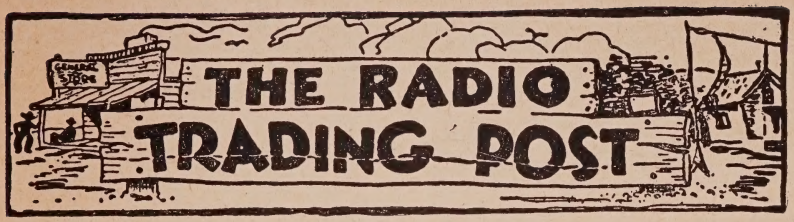
L_3—**Buffer.** 5 turns No. 18 enamelled wire on ¾"-diameter form. Winding length ¾ inch. Tap 3¼ turns from B-plus end.

L_4—**Final Amplifier.** Each section 4 turns ⅛" o. d. copper tubing airwound 1¼" in diameter. Winding length 1¼ inch. Separation between sections of coil 1 inch.

L_5—Antenna Coupling. (50 to 72 ohms). 5 turns $\frac{1}{16}$" o. d. copper tubing airwound $1\frac{1}{4}$" in diameter. Winding length of $\frac{3}{4}$ inch.

PARTS LIST FOR FIGURE 3

C_1—0.00025 ufd. mica (C-D 5W5T25)
C_2—0.01 ufd. mica (C-D 1D3S1)
C_3—35 uufd. midget variable—Cardwell ZR-35-AS
C_4—0.002 ufd. mica (C-D 1W5D2)
C_5—0.0001 ufd. mica (C-D 5W5T1)
C_6, C_7—0.01 ufd. mica (C-D 1D3S1)
C_8—35 uufd. midget variable—Cardwell ZR-35-AS
C_9—0.002 ufd. mica (C-D 1W5D2)
C_{10}—0.00025 ufd. mica (C-D 5W5T25)
C_{11}, C_{12}—0.01 ufd. mica (C-D 1D3S1)
C_{13}—35 uufd. midget variable—Cardwell ZR-35-AS
C_{14}—0.002 ufd. mica (C-D 1W5D2)
C_{15}—0.00025 ufd. mica (C-D 5W5T25)
C_{16}—0.00005 ufd. mica (C-D 5W5Q5)
C_{17}—0.01 ufd. mica (C-D 1D3S1)
C_{18}—35 uufd. per section transmitting variable. 0.085" spacing. National TMH-35D.
C_{19}—100 uufd. midget variable—Cardwell ZR-100-AS
C_{20}—0.002 ufd. 2500-volt mica (C-D 1DP25D2)
C_{21}—1.0 ufd. 600 v. oil (C-D DYR6100)
C_{22}—0.001 ufd. mica (C-D 1W5D1)
C_{23}—0.1 ufd. 600 v. oil (C-D DYR6010)
C_{24}—0.0001 ufd. mica (C-D 5W5T1)
C_{25}—1 ufd. 600 v. oil (C-D DYR6100)
C_{26}—0.0033 ufd. mica (C-D 1W5D33)
C_{27}—0.5 ufd. 600 v. oil (C-D DYR6050)
C_{28}, C_{29}, C_{30}—0.1 ufd. 600 v. oil (C-D DYR6010)
C_{31}—0.01 ufd. mica (C-D 1D3S1)
C_{32}—0.5 ufd. 600 v. oil (C-D DYR6050)
J_1—Concentric female chassis jack—Amphenol 80-C
J_2—Chassis-type microphone connector—Amphenol 75-PC1M
J_3—Miniature open-circuit phone-type jack—Carter
L_1, L_2, L_3, L_4, L_5—See COIL TABLE
M_1—0-1 d. c. milliammeter
M_2—0-200 d. c. milliammeter
R_1—100,000 ohms ½ watt carbon
R_2—27,000 ohms 2 watts carbon
R_3—22,000 ohms 2 watts carbon
R_4—27,000 ohms 1 watt carbon
R_5—11½-ohm wirewound meter shunt (See Text)
R_6—100,000 ohms 1 watt carbon
R_7—470 ohms 2 watts carbon
R_8—27,000 ohms 2 watts carbon
R_9—5½-ohm wirewound meter shunt (See Text)
R_{10}—100,000 ohms ½ watt carbon
R_{11}—470 ohms 2 watts carbon
R_{12}—27,000 ohms 2 watts carbon
R_{13}—3.6-ohm wirewound meter shunt (See Text)
R_{14}—3 megohms ½ watt carbon
R_{15}—5200 ohms ½ watt carbon
R_{16}—0.47 megohm ½ watt carbon
R_{17}—1-megohm potentiometer
R_{18}—4000 ohms ½ watt carbon
R_{19}—0.47 megohm ½ watt carbon
R_{20}—0.47 megohm ½ watt carbon
R_{21}—0.25 megohm ½ watt carbon
R_{22}—52½-ohm wirewound meter shunt (See Text)
R_{23}—2.15-ohm wirewound meter shunt (See Text)
R_{24}—1500 ohms 5 watts wirewound
R_{25}—3300 ohms 2 watts carbon
R_{26}—7500 ohms 25 watts wirewound, with 2 sliders
R_{27}—800 ohms 10 watts wirewound
R_{28}—1000 ohms 20 watts wirewound
R_{29}—5000 ohms 10 watts wirewound
R_{30}—5000 ohms 10 watts wirewound
R_{31}—10,000 ohms 10 watts wirewound
R_{32}—5000 ohms 10 watts wirewound
RFC1, 2, 3, 4, 6, 7—2½-millihenry, 125-ma. r. f. chokes
RFC_5—2½-millihenry, 300-ma. r. f. choke—National R-300U
S_1—S.p.d.t. non-shorting wafer-type switch
S_2—2-pole, 5-position, non-shorting rotary selector switch
S_3—D.p.d.t. non-shorting wafer-type switch
S_4—2-pole, 5-position, non-shorting rotary selector switch
S_5—D.p.d.t. toggle switch
T—Special supermodulation audio transformer—Gaertner CS-3262 (The Gaertner Co., 3614 Maple Ave., Los Angeles, California)
XTAL—Quartz Crystal (See Text)



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SWAP—Metal locator, radio tubes, and parts, all used. Rubber molds for making plaster novelties. Want test equip of all kinds. John Haynes, Doe Run, Mo.

FOR SALE—Light plant (portable) "Homelite" 110 v. AC 60 cy. 500 w. $140. Theodore J. Nelcey, 138 Hendrie Ave., Riverside, Conn.

SWAP—Homemade 2-tube intercom and AC volt ammeter, good cond., one or both for tube tester in good cond., or new kit. Dale Miles, 601 Jones St., Old Hickery, Tenn.

FOR SALE—Westinghouse RH-35 Elapsed Time Meters 0-99,999.9 hours, 120 v., 60 cys. Self-starting, $12.95 each. H. J. Lewis, 2533 Farragut, Chicago, Ill.

SELL OR SWAP—Precision E-200-C sig. gen, 1020-P tube and set tester; Supreme 574 VTVM, like new. $150 cash or trade for portable electric saw with guide and rip fence and complete plumbers outfit. W4LAF, 460 N. Limestone, Lexington, Ky.

SELL OR TRADE—Like new Remington portable typewriter; Colt .22 Woodsman; bench saw; 6 v. Eliminator; Preceptor "B" tube tester; tubes; 8 mm. Titler; .22 rifle. E. G. Barlett, Atlanta, Mo.

WANTED—Small oscilloscope — interested in one from DeForest course or similar, in good shape or repairable. C. Gabler, 1307 Merriam Ave., New York 52, N. Y.

SWAP—Speed Graphic, 4x5 Anniversity model, f4.5 complete with all accessories, like new, for quality tape or disc recorder, test equip., or what have you? Carl T. Petersen, 2430 East 20th St., Oakland 1, Calif.

SELL OR SWAP—Norelco Projection TV attachment unit, model PAA2. Want power woodworking equip., such as 8" or 10" circular saw, jointer planer, or what have you? J. Zocchi, Jr., 10 Marlboro St., Exeter, N. H.

FOR SALE—Rytel C.R. tube reactivator; Riders vol 12; Riders 1st year "Tell-A-Fault," above like new, $25 f.o.b. C. Zieg, 942-30th St., San Pedro, Calif.

FOR SALE—Radio and TV tubes and parts cheap. Send self-addressed stamped envelope for list and prices. Irving Koplow, 634 E. 233 St., Bronx 66, N. Y.

FOR SALE—Tape recorder, Brush BK-414, exc. shape; BC-412B Oscilloscope; W. E. 4A Reproducer with transformer; Wireless Engineer 1950-52; Journal of A.I.E.E. 1936-40. N. I. Wolk, 1411 Ave. N, Brooklyn 30, N. Y.

FOR SALE—2 7JP4; Sylvania 131 3" scope, like new; Sparx 905 sig. tracer; Riders manuals 1 thru 14, like new, best offer takes. Bud's Radio and TV Service, 5912 Hampton Ave, St. Louis, Mo.

FOR SALE—Heath 0-6 Scope with spare Dumont CR tube, $30; Heath 0-8 Scope with trace intensifier and spare CR tube, $60. Both exc., NYC area only. Herbert DeLima, Box 65, Seaford, N. Y.

WANTED—Volume control GE P-163215; IRC J-823. G. W. Swiska, 109 East School Ct., Woonsocket, R. I.

WANTED—Ant. rotor, Weller's gun, port. typewriter, A. battery elim., 4.5 and 5 mc., Xtals, Supreme manuals, adjustable fluor. light. J. Leach, Federal near Mulberry, Milton, Del.

WANTED—Responsible position in instrumentation development, research, or sales-service. B. S. in E. E., M. S. in electronics, 14 years' experience in instrumentation, electronics, and research, including supervision of personnel. For complete information or personal interview write to F. N., 246 Maryland St., Westfield, N. J.

WANTED—Will pay $1 each for Sams Photofacts from No. 101 to No. 199. Lyle M. Parks, 1701 Elizabeth St., Bay City, Mich.

WANTED—Radio and TV service job or business, consider partnership. Single, references, 21 years. Radio experience, TV course completed with 3 months' practical exp. Michael Schmidt, 603 Aberdeen Ave., Winnipeg, Manitoba, Canada.

FOR SALE—Riders manuals 1-17 inclusive. Perf. cond., $75 f.o.b. Satisfaction is guaranteed. Robertson Radio Service, 306 W. Main, Greenwood, Ind.

WANTED—Antenna rotator, cash or trade. George Epstein, 200-27 46th Ave, Bayside 61, N. Y.

WANTED FOR CASH—Gonset 10 meter converter, 20,000 multimeter, late Heath or other VTVM. Send description and best price. M. Weinberg, 987 E. 178th St. New York 60, N. Y.

FOR SALE—Multitester model 442 RCP, $15; tube tester RCP 310 with modernization unit $20; sig gen., model S-G43 $18. All C.O.D. Victor Kozma, 1665 Stadium Ave, New York 61, N. Y.

WANTED—Scott 33 tube FM-AM Philharmonic, or 28 tube Scott Phantom Deluxe. 22 tube RCA model D22-1 without cabinets. Chassis to be complete with all components, cables, speakers, etc. Cash or trade. W. W. Smithers, 1709 E. Stella, Fort Worth 4, Tex.

FOR SALE—Heathkit V-5A VTVM, less than 50 hours use, R. F. Probe and 30KV probe, $27. Will not ship. William Aronis, 41-10 12th. St., Apt. 6C, Long Island City 1, N. Y.

FOR SALE—Stancor ST202A multi-band transmitter with tubes and 40-80 meter coils; like new, best offer takes it. Morton Goldman, 345 West 88th St., New York 24, N. Y.

FOR SALE—Radio phonograph, cost $135, perf, $25; 700 records, $100, features B. G., G. M., T. D., etc.; Wilcox-Gay Recordio needs tubes, cost $175, sell $25; over 220 pocket books, $15. J. L. Madden, 412 Columbus Ave., Tuckahoe 7, N. Y.

SELL OR TRADE—Vibro tool, Burgess AC only, movie projector, 16 mm. silent, screen, war films, phono portable OS player, 600 records, RCA portable radio. H. Kuell, 18½ Thomas St., Newark 5, N. J.

SELL OR SWAP—Complete NRI comm. course (without kits) 78 lesson texts, $35 p.p., or what have you? John Smith jr., 213 E. Adams Ave., Lebanon, Tenn.

FOR SALE—General Radio AC VTVM mod. GR-726A, a laboratory instrument complete with high freq. probe. Perf. cond. $100. Express collect. J. R. Blundin, 214 W. 2nd St., Mt. Carmel, Pa.

WANTED—Phono. CW Xmtr., 500 w., 1 kw. Give full description. Swap Viking I or cash. Also recvrs, any cond. J. J. Santomas, 14 Railroad Ave., Hammonton, N. J.

SELL OR SWAP—16AP4A tube, '37 Buick custom radio, radio-TV magazines, new phono. crystals, '48 Ford-Mercury custom radio, all good shape. Swap for tubes of my choice. C. F. Elgasser, Jr., 1920 Fern St., San Diego 2, Calif.

FOR SALE—Gonset converter 10-11 M, $15; Stancor 10 M 40 w. Xmitter, $35; 459, complete wih power 40 M 75 w., $30; 455 with power, $12; Vibroplex bug, new cond., $6. John E. Bryan, 1950 Rishworth Lane, White Bear 10, Minn.

FOR SALE—Professional NRI sig. tracer model No. 33, perf. cond., and Mercury II camera with flash unit. Both $80. Will sell separately. Ernest Beard, 4942 S. Western Ave., Chicago 9, Ill.

WANTED—Oscilloscope, Audio gen., used test equip., resistors, condensers, etc. Bill Brunner, 318 West Galer, Seattle 99, Wash.

FOR SALE—Precision sig gen. series E200 (like new); Kodak A-B-C Photo-Lab outfit model B with metal printing box (used once); Print-O-Matic model A2 postal card size stencil duplicator (used once). Make offer. Louis Mark, 322 Snediker Ave., Brooklyn 7, N. Y.

FOR SALE—Pacific auto radio, mounts on firewall. Tuning head mounts under dash, or through opening on older Chevrolets. 6 tubes plus rectifier, $22.50. William Hintz, R R 4, Hutchinson, Minn.

SWAP—Complete CREI Practical Radio Eng. course, from Ohms Law to UHF, 20 separate vol. for good used test gear or surplus equip. such as BC-312, or what have you? S. Consalvo, 2507 Southern Ave. SE, Washington 20, D. C.

FOR SALE—TV chassis from 10" sets with all parts but no tubes, $15; with cabinet $20. Ace TV, 5341 Cordelia Ave., Baltimore 15, Md.

FOR SALE—Solar Capacitor analyzer, good cond., $25; Greelee knock-out punches for conduit ½" ¾" 1" 1¼" 1½" 2" and 2½" $20. John E. Loraine, 211 Summer Ave., Newark 4, N. J.

SELL OR TRADE—Nearly new "M" scope for detecting underground metals, etc., $125. Late Warner electroplating outfit $60. Riders 6, 9, 12, and 14, all for $35. Want Triplett sig. gen., sweep gen., typewriters, 3" scope, or cash. George R. Calvert, Box 637, Auburndale, Fla.

WANTED—Ghirardi's "Radio & Television Circuitry and Operation," and Drake's "Cyclopedia of Radio & Electronics." Must be bargain prices. Walt Bartell, 1107 N. Western Ave., Chicago 22, Ill.

FOR SALE—5" Heath oscilloscope, new cond. with extra shield for CRT $45; T-20 ARC-5 converted to 75 meter ECO $10; BC458 transmitter conv. to 40 M., ECO $10. L. M. McGee, 501 E. Wyatt, Herington, Kan.

SELL OR SWAP—N.R.I. radio and TV course; ICS radio course; ARRL amateur handbooks 1940, 42, 44; 1940 RCA tube manual. Want trans 10-80 m. or comm. recvr. Richard Kayne, 233 Naples Terr., New York 63, N. Y.

FOR SALE—Hallicrafters S40B recvr., new cond. $80. Ralph E. Johnson, 3 Washington Place, Cranford, N. J.

TRADE—Printing outfit ($300 value) for late model wire recorder, or will sell for $50. George Neuschafer, Ingram, Tex.

SELL OR SWAP—Boston area. 2 fine roll-top desks; heavy safe; also Howard FM tuner, $22. S. Swetzoff, 149 Intervale St., Boston 21, Mass.

WANTED—For cash, model 209 Hickok elecronic voltohmmeter in good cond. M. J. Thornhill, Route 2, Hoschton, Ga.

WANTED—Superior sig. gen. mod. 1230. State cond. and price. J. E. McManus, Thornton, Ark.

WANTED—Complete set or single vol. of Riders Manuals at a reasonable price. Harold Eskin, 970 Clinton Ave. South, Rochester 20, N. Y.

WANT—Oscilloscope, kit or asssembled. State brand and model. Trade Underwood typewriter. Walter Bruskiewicz, 1107 N. Western Ave., Chicago 22, Ill.

FOR SALE—Two Regency RC-600 UHF TV converters, like new, $30 each f.o.b. George H. Cable, 129 Edgar St., York, Pa.

SWAP—For test equip, 850 war surplus capacitors, dual .5 mfd 600 v. oil filled, copper cased, value, $2.50 each, will trade for 10% of value or sell 10 for $2.35 p.p. K. Caum, 457 Birch St., Flemington, Pa.

WANTED—Ampex, Concertone, or Premier 70 Tapesonic tape recorder; Belmont Boulevard pocket radio or similar. Marilyn Phillips, 418 Gregory, Rockford, Ill.

SELL OR TRADE—2 stage TV booster Astatic model AT-1, Anchor model ARC-101, used but in good shape. Trade for Blonder-Tongue model HA-2-M (Antensifier), both units. John Arnold, Box 84, Bluffs, Ill.

WANTED—Radio and TV test equipment, reasonable and in good cond. Maurice McCann, 712 Romayne Ave, Racine, Wis.

WANTED—Late model tube checker. Have 30 w. Newcombe amp. for sale. H. Wright, 146-15 130 Ave., So. Ozone Park 36, N. Y.

FOR SALE—TV sets 10" and 12", some not in working cond. Send for list. B. Roka, 5341 Cordelia Ave., Baltimore 15, Md.

WANTED—Meissner instruction book manual on "How to Build," printed before 1949. Will sell Solar Analyzer model CF and Supreme 5" oscilloscope. Francis Muto, A. B. C. Radio, 459 W. Belden, Chicago, Ill.

FOR SALE—Collins FM tuner FM-11 $50 f.o.b.; Rek-O-Kut 12" Transcription Turntable LP-35, 33⅓ and 45 rpm, like new, $30; Webster 3-speed 356-27 record-changer, GE turnover pickup, $25 f.o.b. Mrs. Stanley Phillips, 2135 - 7th St., Rockford, Ill.

FOR SALE—Converted Mark II recvr-transmitter, complete with regulated and plate supplies for 110 v. AC, the finest 50 w. 40 and 80 CW outfit obtainable, $35 f.o.b.; HT-17 as new, all coils, meter; accessories, $35. Samkofsky, 527 Bedford Ave., Brooklyn, N. Y.

FOR SALE—3 AC radios, 3 bands, complete with tubes, 2 cabinets. Local only, $17 for all. 3-way portable, complete with tubes 1A7, 1N5, 1H5, 3Q5, 11726, $6 C.O.D. Victor Kozma, 1665 Stadium Ave., New York, N. Y.

WANT—16 mm camera with lens, cond. not important if case and lens OK. Will swap comp. CREI course. Will exchange other swap lists. Prefer New York area. New Rochelle Service Co., 64 Mt. Joy Pl., New Rochelle, N. Y.

FOR SALE—Rider's TV manuals, vols. 3 and 4, hardly used, $10 each; Eico mod. 360 TV-FM sweep sig. gen., factory checked, perf., $20; Heath Vacuum Tube Voltmeter, V-6, like new, $18. N. Kulke, 19620 Pasnow Ave., Euclid 19, Ohio.

WANTED—APR-4, other APR-, APS-, ARC-1, ARC-3, ART-13, BC-348, BC-221, etc.; TS-12, 13, 35, 45, 120, 146, 155, 173, 174, 175, 323, other "TS-", particularly Microwave equip.; manuals meters, parts, cable: Quick cash, or trade cameras, film, TV, ham gear, 304TL's, etc. Litteli, Farhills Box 26, Dayton 9, Ohio.

FOR SALE—Webster-Chicago mod. 80-1 Wire Recorder, like new. Cost $149.50. Make offer. Wm. A. Beltz, Chamber of Commerce, Worcester, Mass.

FOR SALE—Radio Craftsmen tuner and amp. at less than dealer's net prices. C-500 Ultra Fidelity Amp., $89.50. C-10 AM-FM tuner, $119.95. Greenwich Speciality Co., Greenwich, N. J.

FOR SALE—10" round picture tube with deflection, focus coils and mounting, 16" rect., picture tube; all in good cond. No reasonable offer refused. Local transaction only. Geo. H. Johnston, 6380 W. Columbia Ave., Phila. 31, Pa.

TRADE—250 w. Multi match mod. transformer, Multi match input, 13 tube AM-FM chassis complete with tubes — no spkr, for transmitter or sig. shifter. Sanfords' Electronics, Hillsboro, Wis.

SELL OR TRADE—20 w. modulator, 600 v. - 175 ma. power supply. Want unmod. Command Transmitters, 813 tube, portable typewriter or ?? Stanley, 2748 Meade St., Detroit 12, Mich.

FOR SALE—Philco Projection TV set, mod. 2500, working cond., nice cabinet, new pix tube, $50 cash. Transportation extra. Frank Clement, Hare's Hill Rd., Phoenixville, Pa.

SELL OR TRADE—QST's Jan., Feb., April, 1928; May, 1929 to Feb., 1934; April, 1934 to Dec., 1940; Jan., April, May, 1941; Jan., 1944; April, 1946 to Dec., 1949. Want March, 1934 and prior to Feb., 1925. J. H. Brownell, Pointe du Bois, Manitoba, Canada.

FOR SALE—Rider's Manuals, 1-5 abridged, to 15, eleven in all. Any reasonable offer. Complete with indexes and nearly new cond. Julio Bellber, 320 Clinton St., Hoboken, N. J.

WANTED—Blonder Tongue TV Distrib. Amp. model DA 8-1M with 8-300 ohm outlets. Must be less than net price. Working cond. not required. Ray Langlois, 1448 Randall Ct., Los Angeles 65, Calif.

SWAP—Two BC-645 transceivers in orig. cartons for TBY transceiver of SCR 625 mine detector. V. Polton, 5208 S. Richmond, Chicago 32, Ill.

FOR SALE—Radio & TV Service shop, fully equipped and stock of parts, in good location. Retan Radio & Electric Service, Box 177, Jasper, Mich.

FOR SALE—Hallicrafters S-40B, guaranteed new cond., first $75 get this fine recvr., all other returned. Also have code records up to 13 words — best offer. Chuck's Radio-TV Service, Portageville, Mo.

FOR SALE—Precise sig. gen. model 630, A-1 cond., used two months, $32. Want schematic for Echophone Commercial, model EC-3 recvr. Chas. M. Kobito, 404 Ann St., Rome, N. Y.

SELL—Thordarson 1000-400 v. supply, rack mounting, never used, five xtals, four milliammeters, RF ammeter, components for 100 w. CW XMTR, and 600 v. 300 mil. supply. Pair 807's, pair 809's, $50. Howard Buck, 32-15 81 St., Jackson Hgts., N. Y.

FOR SALE—Portable 4-position broadcast mixer T.W.T. Taylor 2C4 console control mixer, 110 v. AC operation. Four high gain low impedance inputs. Includes 3 w. audition amp. Used good cond., $100. A. Levine, 363 Victory Blvd., Staten Island 1, N. Y.

FOR SALE—Ready-to-go 25 w. 10 mtr. transmitter. Size, 3" x 7" x 7". Ideal for mobile, 6V6 osc., 6V6 final, 6V6 Heising Modulator. Requires 300-350 v. at 80 mils., $20. R. W. Heckbert, 30 Magoun Ave., Medford 55, Mass.

WANTED—Complete radio and TV course and test equip. Leslie Szentmiklossy, 2339 Durant Ave., Berkeley, Calif.

FOR SALE—Hickok model 305 oscillograph; Hickok model 288 X sig. gen.; Sprague Tel-Ohmike condition checker, like new. Ralph Lucas, 8508 Broadway Ave., Cleveland 5, Ohio.

FOR SALE—All Sams TV folders to July, 1953, over 275 models, $67.50, never used. Paul H. Case, Box 295, Ansley, Neb.

FOR SALE—Remote control units, ideal for substitution tester, audio switching. 2 RCA broadcast type knobs, 2 pole 4-position switch, potentiometer, 2 phono jacks, barrier 10 terminal strip, etc., $2 f.o.b. Frederic Brewer, 144 Haddon Pl., Upper Montclair, N. J.

FOR SALE—Presto K Recorder, used very little, fine cond., $250. Earl A. Keener, 920 E. Clark St., Pocatello, Idaho.

SWAP—Hammond Solovox — for 30 w. Brook Amp. and Preamp. or Klipschorn, Boston area only. Eugene Roy, 5 Hillside St., Haverhill, Mass.

FOR SALE—Meissner 8C FM tuner, like new cond. Tubes included, $29.50. J. Haskell, Jr., 25 Whitney St., Saugus, Mass.

FOR SALE—Feiler Electroscope TS-8. Tests all elec. appliances, accessories, and motors. Receptacles for appliances and built-in continuity tester. A-1 cond., complete instructions, $18.75. Arnold M. Herman, 540 N. Lawndale Ave., Chicago 24, Ill.

FOR SALE—HiFi Audio Amp. Transformers. UTC LS-55, LS-19, LS-6L4, A-10, CG-19. Also Blonder-Tongue model HA-1-L TV Booster. Meissner HiFi AM Tuner. Illuminated VU Meter. Will sacrifice. Paul Schultz, 3355 9th St., Riverside, Calif.

SELL OR TRADE—Nuclear Scaler, Atomic Instruments model 101, $180. All types of geiger tubes. Survey meters — Victoreen model 356 beta-gamma, $160, Victoreen model 263 alpha, $180. All exc. cond. Want Collins 75A2 or 75A3. P. M. Reyling, Route 2, Concord, Tenn.

WANTED—Schematic for Ozarka Radio, has following tube line up, 11 tubes: 5Y3, 2-6U7, 2-6J7, 2-6C7, 2-6F6, 6H6, 6U5. Please help me. Cash for same. Pete Haas, Lebanon, Ill.

SELL OR TRADE—Approved electronic field strength meter model A-460. 3 mos. old. What have you? Seth's Radio Service, 100 South St., Milltown, Me.

WANT—Will trade or sell complete set watchmakers tools, equip., supplies, references, less lathe, for late model TV set. John York, Fishkill, N. Y.

FOR SALE—Like new power supply, 4 output voltages 300 v 125 mil., 105 v. regulated, 100 v. negative bias, 6.3 v. filament, hermetically sealed trans., plug-in condensers, complete with 5U4G and OC3. E. E. Williams, 631 Chestnut St., Lynnfield Center, Mass.

URGENT—Need dial scale for Chev. radio model No. 985792. Please state price. H. R. Lauffer, Crabtree, Pa.

FOR SALE—Hickok 288X, $80, Hickok 277X, $59. Both like new cond., Electronic Labs, 2444 "D" St., Lincoln 2, Neb.

SELL OR TRADE—RCP 308 tube tester, RCP 504 push-button master analyst. Want Meissner sig. shifter or Johnson VFO. Samuel Ferraro, 5025 54th Place, Hyattsville, Md.

FOR SALE—Riders Radio Manuals 10-14, including index, exc cond. Best offer takes, buyer pays shipping. Joe Newberg, Stone Rd., Lexington, Ky.

FOR SALE—Heathkit Battery Eliminator, model BE-3, assembled and perf. cond., $25 f.o.b. DeVoe Radio Service, P.O. Box 414, Spring Green, Wis.

FOR SALE—Zenith Power Supply "A" Battery Eliminator, 15 v., 60 milliamperes for use 110 v., 60 cy. A.C., Model ZE3, Serial No. 3005, Model ZE4, Serial No. 3426. Any reasonable offer accepted. Wm. J. Albrecht, 83 E. 2nd St., Moorestown, N. J.

FOR SALE—Like new model E200-C Precision Sig. Gen., with manual — lists at $72. Express collect, $40. Willard Thomas, Route 1, Box 528, Reserve, La.

FOR SALE—Oak Ridge Cathode Ray Tube Tester and circuit analyzer, No. 106, tests all picture tubes, used three times. $20 or 20,000 ohm volt-ohmmeter in good cond. Balthasar's Radio-TV Shop, 339 East St., Buffalo 7, N. Y.

FOR SALE—NRI Radio & TV Course, Philco Sig. Gen. and instructions; Sterling tube tester and instructions. Each $15. Send U.S. money order. Agostino, 223 South Winebriddle Ave., Pittsburgh 24, Pa.

FOR SALE—Philco auto radio, exc. cond., aerial included. Only $15 or best offer. Henry Konkowski, 108 Fourth St., Newark 7, N. J.

FOR SALE—Rider's Radio Manuals, Vol 1 to 13, inclusive, unabridged, exc. cond., except No. 1 slightly soiled. Used in one man shop. $90 F.O.B. E. Serra, 319 Brook St., Linden, N. J.

FOR SALE—Heathkit Sig. Gen. model SG-6, like new, $17.50; Sig. Gen. Superior Instrument Co., model 650, hardly used, $28; Fieler Sig. Tracer model TS-3A, $24; record changer, $10; headset with breast mike, $8. Wilbur L. Newcomb, Eagle Rock, Va.

SELL OR TRADE—UCT HA-107 transformer, Hickok 540 tube tester, Radiotone RA-16 16" two speed disc recorder complete, Electro-Voice V-1 mike new, tubes. Want: Pickering 190 arm, D-140S cartridge, Magneraser, B&W distortion meter in any repairable cond. Roland Jordon, Jr., Chief Engineer, WSBB, New Smyrna Beach, Fla.

WANTED—Triplett model 630 VOM. State age, cond., and lowest price. Elmer E. Bensen, 1006 Prairie, Joliet, Ill.

SELL OR SWAP—RCA 160B 5" scope, 2 and 4 mfd. paper cond., 200 CM 750 w. variac, pilotuner, McMurdo 909 sweep gen., 150 w. inverter. F. J. Goldwater, 572 Broome St., New York 13, N. Y.

WANTED—Sig. Gen. 100 to 200 MC; TV Sweep Gen.; TV Calibrator. Must be reasonable. Sid Roth, Tempo Service, 3344 Ft. Independence St., Bronx, N. J.

FOR SALE—Precision E-200 Sig., Gen., $30; Philco Tube Tester model 1213, $10; Heathkit Sig. Tracer, $15. All in perf. cond. D. Boord, 90-40 148 St., Jamaica, N. Y.

FOR SALE—Magnavox Imperial Windsor Radio (less cabinet) consisting of 78 RPM phono, 45 w. amp., 15" bass and multicellular tweeter, CR-204B AM, FM, SW, 8-button tuner. Best offer. Semken, 355 East 187th St., New York 58, N. Y.

WANTED—Complete set of Sam's Photofacts, used. State price and cond. Have Dutch radio tubes for sale. Twin "R" Radio, 845 Main St., Holyoke, Mass.

SWAP OR TRADE—NRI xmtr. without mike, incl. power supply for 5" osc. for use in TV servicing. Earl W. Maxson, 46 William St., Hudson Falls, N. Y.

FOR SALE—Rider's manuals vol. 1-20, $150; Shallcross Wheatstone Bridge $75; Jensen spkrs. H-24, C-3667, $35 ea.; Weston 772 Analyzer $60; Precision Series 856-G $25. H. E. Carlson, 5 Lewis St., Saugus, Mass.

FOR SALE—Rider's manuals 11, 12, 14, 15, 16; TV-I and II. Like new. Radio Electronics 1946 to date. Radio TV News 1949 to 1950. Jackson model 640 sig. gen. Best offer. George Spear, 628 Chestnut St. Roselle, N. J.

SELL OR TRADE—R-19 rcvr., like new, all coils 250 — 14000 kc., tubes, plugs, power supply, parts, rack. Want cash, FM tuner, 'scope. Arthur Fisher, 600 W. Roosevelt Blvd., Phila, 40, Pa.

FOR SALE—18" full-range PM spkr., 40 w., in modern custom-made walnut enclos. Exc tone and cond. Cost $250, now $50 F.O.B. GE floor model sun lamp with type S-1 bulb, $10 F.O.B. N. Hulemark, 130 - 75th St., Brooklyn 9, N. Y.

WANTED—Zenith FM rcvr. model 7H918; the small rcvr. often called the "Major." George A. Cahill, East Dennis, Mass.

WANTED—book—"Radio Test Instruments" by Rufus P. Turner, published about 1945. Write first. E. V. Brant, 1161 Delaware Ave., Detroit 2, Mich.

SELL OR TRADE—2 Chev. custom auto radios '49-'50, 1 manual, 1 PB, A-1 cond. International time clock. Make offer. Slim's, 1147 Sunkist Ave., Waukesha, Wis.

FOR SALE—Hallicrafter model S-38 rcvr., perf cond., $25 or best offer. Milton Smith, 832 Belmont Ave., Brooklyn 8, N. Y.

WANTED—War or combat or documentary films, 16 mm. only, sound or silent, will trade for Triplett EV10A or cash. Best Radio, 3349 Fulton Road, Cleveland, O.

TRADE—NRI TV and Radio Servicing Course, texts only. Want NRI Comm. Course texts. T. H. Shobe, 3106 Emporia St., Richmond, Va.

TRADE—Metal turning lathe or custom Motorola for 1949-50 Chev. Want Rider's TV manuals from 4 up, give numbers first letter. Paul F. Vick, Kershaw, S. C.

WANTED—16" vertical transcriptions, vintage 1935-45. Cash or will trade: W.E. 9A pickup with arm, 18" Cinaudagraph spkr., RCA 15" duo-cone spkr., Presto 500 ohm 1B cutter, Dumont 3" scope. D. Pace, 560 Audubon Ave. New York 33, N. Y.

FOR SALE—Superior TV Sig. Gen. model TV-30, like new, $28. Post Paid. Adam W. Miller, 381 Baldwin St., Meadville, Pa.

FOR SALE—Heath oscilloscope 0-6 $30; Heath TS-2 sweep sig. gen. $30. Both for $55. In exc. operating cond. and appearance. George E. South, 5343 Fillmore Ave., Alexandria, Va.

SELL OR SWAP—Intercomm. Master, six pushbutton stations, walnut cab., never used, at fraction orig. cost. Will swap for late portable or standard typewriter or good Reflex Camera with flashgun. L. Buddine, 1700 West High St., Haddon Heights, N. J.

WANTED—630 type TV chassis, 7JP4 tube, at bargain prices. Give description, cond., price in first letter. V. G. Slater, 253 North 25th St., Wilmington, N. C.

SWAP—Issues 2 and 4 TV-Electronic Technician for copies 1 and 3. Ben's Radio, RFD 2, North Tonawanda, N. Y.

FOR SALE—Jackson TV-FM sweep sig. gen. model TVG. Nets $245, asking $150. Stancor-Master Power-Pack model 752, in orig. carton. Nets $46.25, asking $35. Victor LeBeau, 3616 - 42nd Ave. North, St. Petersburg, Fla.

WANTED—221, 211 or LM freq. meter and TCS equip. Will trade Millen exciter, SCR-522, BC-312, Oldsmobile "98" radio, killowatt transformer or cash. Want also marine radiophone. T. Williams, 100 Rugby Rd., Syracuse 6, N. Y.

FOR SALE—German radio tubes: 2-EF9, EL3N, EBC3, EM4, WIEN, ECH, all in good playing cond. Best offer or what have you? Albert Blizzard, Riverton, W. Va.

FOR SALE—Magazines: QST 1926-1933, complete, bound. 1934 except, Jan., 1935 except June. Loose copies 1927-1950. Also CQ, Radio News, Radio Craft, Short Wave Craft, etc. Reasonable cash offers accepted. Write for list. Samuel Mack, 29 Union St., Lowell, Mass.

FOR SALE—Simplex VOM model 312, $5; Clippard Multi Freq. Gen. SE-1, $8; Feiler Stethoscope Tracer TS-3A, $34; Eico VOM model 511-K Tester, $15. All in perf. cond. L. Olson, 550 E. 148th Pl., Harvey, Ill.

FOR SALE—National HFS superhet with power supply, $100; 522 Xmtr untouched, $17.50; 2 meter superhet $25; Precision EV10 & HV probe $75; 288 Hickok $125. Nelson K. Stover, P. O. Box 722, York, Pa.

WANTED—Buy, borrow manuals for Model OM-A Clough-Brengle freq. mod. sig. gen. and CRA oscillograph. Offer high value U.S. stamp collection in exchange for Magnecorder tape recorder. Stanley Roszewski, 22 Ellington Ave., Rockville, Conn.

FOR SALE—Collectors: Old Tubes, Conneticut Det. Type J117, Deforest Audion Type DV3A, and Audion Nickel Base, Aeriotron Type WD11, Welsh Det. Type WT501. Ken's Radio-Vac Shop, 917 Howell St., Seattle 1, Wash.

FOR SALE—Sonar SRT-120P, complete with VFO and built-in power supply, factory wired, like new cond., run about 25 hrs. $200. John Delaney, 131 Mountainview Ave., Staten Island 14, N. Y.

FOR SALE—Panoramic Sonic Analyzer in exc. cond., immediate delivery, cost $1,600, sacrifice $1,000. W. J. Loucks, Warren, Pa.

SELL OR TRADE—Slightly used camera, 35 mm. F3.5 lens, shutter speed up to 1/1000 of second, built-in exposure guide, leather carrying case; practically new GE table model radio. Want radio rcvr. Hallicrafters S38C type or better. Wm. G. Medina, 611 Park St., California, Pa.

WANTED—Power transformer for Philco 48-700 TV, also 10" or 12" used TV set in good cond. Kirk Lumsden, 1103 Arney St., Elizabethton, Tenn.

SELL OR TRADE—NRI Radio TV Comm. Course, 5BP4 tubes. Best offer cash or trade. Hundreds of radio-TV tubes, 1/3 of list price. J. D. Grigas, 9738 Crandon Ave., Chicago 17, Ill.

FOR SALE—Eico tube tester, model 625, used only 3 months, good cond, $43.50. Richard Wrobel, 175 - 23rd St., Barterton, Ohio.

SELL OR TRADE—For Lettine or Eldico TR-75 Xmitter: BC-696, $13; 10 meter VFO Xmitter, $15; Novice 80 & 40 Xmitter, $18; RCP model 322 tube tester, $20; Eico model 320 sig. gen., $15. T. Unnold, 87 Brown St., Hartford, Conn.

FOR SALE—Like new 2" 1 amp. R.F. Ammeter, GE, in round bakelite case, in orig. box., $4.75 PP. L. Cohen, 151-09 34th Ave., Flushing, N. Y.

FOR SALE—Two 21CP11 pix. tubes, never used, to highest bidder. James B. Wright, 403 Laurel St., Warren, Pa.

FOR SALE—Motorola police cruiser rcvr., P89-18ARS, National all-band tank assembly MB150, BUD code practice osc. Will sell separately, best offer takes. Carl E. Roliff, 475A 41st St., Oakland, Calif.

SELL OR TRADE—Philco Multitester, Radio City VOM, 15 w. amp., record changer, elec. power pack for battery radios, 25 w. 6L6 output amp. power trans. What have you? Jack Grant, P.O. Box 42, Olney, Okla.

FOR SALE—Rider's manuals 1-5 abridged, 6 thru 13, never used; A. Ghirardi: Modern Radio Servicing, Radio Physics course, Trouble-Shooters Handbook, and others. Make offer. S. A. Gornick, 1150 N. LaSalle St., Chicago 10, Ill.

FOR SALE—Weston model 695, Type II, power level, volt, output, meter. 2 to 200 v. A. C., minus 4 to plus 36 Db. 20,000 ohms constant impedance, $35. H. Walther, 35 Montrose St., Newark 6, N. J.

FOR SALE—Supreme tube & set tester, model 504-A, like new, best offer. Dale E. Sigler, RFD 4, Bedford, Pa.

SELL—12 v. Dynamotor, 400 v. 160 ma., relay, $12; 24 v. Dynamotor, 540 v. 450 ma., $9; 2-2E24 and 2-2E25, $3 each; Mallory VP-554 Vibrapack, $9. G. H. Goldstone, 1745 W. Boston, Detroit, 6, Mich.

FOR SALE—Sams vols. 1 thru 10 and folders 101 thru 1080. Best offer takes them. Art Catlin, Stanton, Neb.

SWAP—Like new Blonder-Tongue 2-outlet TV distrib. amp. and Superior Instrument Co. TV gen. for good tube tester. Pat Blaney, New Straitsville, Ohio.

FOR SALE—Radio shop, and building, 30' wide, 45' long, in Woodville, N. C. Mrs. Mary Shear, Box 95, Woodville, N. C.

SELL OR SWAP—8" tilt table power saw and 110 v. elec. welding set. Both almost new. H. Schneider, 9409 Ave. A, Brooklyn 36, N. Y.

FOR SALE—Precision E-200-C sig. gen., and Simpson model 260 v. ohm Milliammeter. A. James Smith, 834 Davis St., Gainesville, Ga.

SELL OR TRADE—For test equip.: NC-183 National comm. rcvr. like new, $190; Model HFS National high freq. rcvr. with power supply in perf. cond. $95; RCA Voltohmyst 195-A, very good cond. $40. J. Halchak, 10 True St., Everett, Mass.

FOR SALE—Like new boxed 4X-150, 304TH, 100TH, pair 803's, PE-98, exc. cond., Garrard RC-80, GE RPX-052. Berco Radio, 2127 E. 3rd St., Brooklyn 23, N. Y.

SELL OR SWAP—1 2051, 2 mod. units BC 456E, 1 BC-458A, 1 TU-9B, 1 TU-10-B, 1 Hallicrafter rcvr. with battery S-72. What have you? Stanley J. Kern, 44 Carneal St., Ludlow, Ky.

WANTED—WP-25A RCA Isolation Trans.; Hickok model 450 VOM; Sweep Gen. G. H. Swiska, 109 E. School St., Woonsocket, R. I.

FOR SALE—Sonar XE-10 exciter $16; HT-17 complete with coils and meter $35; Mark II converted, $35; 3 assorted meters $6, and Remington and Underwood typewriters. G. Samkofsky, 527 Bedford Ave., Brooklyn 11, N. Y.

FOR SALE—Hallicrafters SX-42 rcvr. with matching Hallicrafters Bass-Reflex spkr. $160; Waterman W-2 pocket oscilloscope with extra 2 AP 1 tube, $25; Hewlett Packard 200C audio oscillator, $75. All in exc. cond. Capt. E. L. Fisher, 2042 Magill Dr., Ft. Monmouth, N. J.

SELL OR TRADE—Heathkit mod. TCI tube checker, exc. cond., $23; Stewart-Warner movie picture camera, Hollywood model, 16 mm., F3.5 lens, exc. cond. Want test equip. or what have you? Walter W. Ellett, 10111 Scenic Blvd., Cupertino, Calif.

SELL OR SWAP—6J4's, 955's, 8001, 829B, 832A, 813's. Want amateur transmitting gear or what have you? George V. Wischebrink, 940 Uniondale Ave., Uniondale, L. I., N. Y.

WANTED—Good short wave rcvr. Have portable typewriter, 35 mm. camera, etc., to trade. R. E. Bridges, 217 Lineberger St., Shelby 1, N. C.

FOR SALE—Eico tube tester model 625K, factory adjusted, perf. working cond., never used, $35. Will pay shipping charges. R. A. Staib, 1621 N. Avers Ave., Chicago 47, Ill.

FOR SALE—Coin operated radio, 6 tube, good cond., guaranteed, $15; Rider's 2, 4 to 8, and Sams 1-36 in 3 hard folders, like new $40. Brown Taylor, 1307 Vultee Blvd., Nashville, Tenn.

FOR SALE—Rider's manuals 1-5 abridged, 6, 7 and 8, like new, half price. Also model 445 Simpson Multi-Meter, good shape, $65. Sacrifice. Warren Frank, 8344 Mayfair, Jennings 21, Mo.

SELL OR TRADE—National Radio course, $50; Pathex portable PA system complete, $50; VM 3-speed changer, $30; HB cond. Tester and Sig. Tracer, $20; 7" and 10" TV's Grey Mather, 612 Charlotte St., Utica, N. Y.

WANTED—Late model scope in A-1 cond., and good FM-tuner. Will swap antique Edison "Amberola" cylinder machine and 50 records, Model 905 "Sprax" sig tracer, model 425 Eico scope, etc. Send for list. O. V. Howell, Box 463, Mars Hill, N. C.

WANTED—Capehart manual on prewar radios. Will pay purchase price plus postage. J. S. Ronay, 3118 West 159th St., Cleveland 11, Ohio.

FOR SALE—Hallicrafter S38C in orig. carton, $40; Custom Ultra-Linear Williamson two chassis amp. using Acro sound TO-300 and KT-66's, $99. Paul Streetman, Box 4426, College Station, Texas.

FOR SALE—Zenith transoceanic portable or plug-in radio, also receives short wave and standard broadcast., good cond., orig. value $100. Must sell. Anthony Sinopoli, 24 West 18 St., Bayonne, N. J.

FOR SALE—GI Recorder-Phono assembly, late model, cut less than 12 records. Make cash offer. Rev. Donald Isles, Lansing, Iowa.

SELL OR TRADE—First approx. 850 Sams Photofacts folders, A-1 cond. Cash or will consider window or exhaust fan, good fan motors, etc. Jenkins Radio Service, Doniphan, Mo.

WANTED—Solar condenser checker, model C.E. Must be in A-1 cond., preferable with manufacturer's manual, state price. Hartmann Radio & TV, 63-04 Broadway, Woodside 77, N. Y.

WANTED—Hallicrafters S-40. Also small transmitter for any freq. from 150 to 162 mc. Paul Trautwein, 40-25 206 St., Bayside, N. Y.

FOR SALE—Rider's manuals 1, 5, 6, 7; Gernsback manuals 1, 2, 3, 4; Supreme Diagrams 1939 thru 1952, also parts and tubes. Horne Radio Service, North Fond du Lac, Wis.

FOR SALE—Radio Service Business, records, radio-TV, estab. 4 years, major boulevard location, wide frontage, rent, $55 month incl. utilities, inv. stock and fixtures over $6,500. Will take $4,200. Don J. Warner, 6422 West Boulevard, Los Angeles 43, Calif.

FOR SALE—Science-fiction magazines and books. Write for details. A. R. Benson, 1264 Forest St., St. Paul 6, Minn.

SELL OR SWAP—11-drawer comb steel cabinet and inserting machine with 2 gross round, 7 gross fancy G-S Flexo Crystals; Sitz Friction Jeweling outfit with asst. of jewels; Yale key cutting machine, book. Want test equip, or make offer. Ed Hagmeier, Box 211, Clymer, Pa.

FOR SALE—Circuit file containing 36 Sams Folders; 1950 Hoffman Service manual; RCA Service Directory; Rider Substitution Guide Book; and many Philco service manuals. All for $40. C. A. Brawner, Jr., 7207 Fisher Rd., Dallas 14, Tex.

FOR SALE—Heathkit Push Pull scope, $40; Heathkit VTVM, $25; Heathkit Signal Tracer, $20. All in A-1 cond. Sam Garshofsky, 1584 Fulton St., Brooklyn 13, N. Y.

FOR SALE—Sams' Photofacts 1-44 inclusive, in binders, never used, $22 F.O.B.; Riders Vol 2, $3, plus postage. George W. Ziska, 692 Broadway, Long Branch, N. J.

FOR SALE—Converted BC 348Q, exc. cond., $75 F.O.B. Harry's Radio, 5232 France Ave., South, Minneapolis, Minn.

FOR SALE—38 lessons of Lincoln Engineering corr. course, $15; Bliley xtal control sig. gen., $25; NRI manual, $10. Jim Wright, 2319 East Independence, Phoenix, Ariz.

FOR SALE—Complete Navy Model TCS, includes xmtr, rcvr., 12 VDC dynamotors, control box-spkr., complete cables, perf. cond. H. W. Rudolph, 12 Drexel Rd., Hatboro, Pa.

SELL OR SWAP—ATR AC to DC inverter, Type 110. Best offer over $10 or trade for radio or TV tubes, Sams' Photofacts or what you? C. Wesley Drew, 32 Beacon St., Somerville, 43, Mass.

WANTED—Standard 78 rpm code records, alphabet thru 13 words per min., or code machine with tapes for beginner. Have radio parts or will pay cash. Frank Edwards, 1511 Second St., Corinth, Miss.

FOR SALE—Heathkit 5" Scope, wired, exc. cond., $20. Prefer local buyer. Will ship express collect. R. P. McClintock, 4325 Wyoming St., Kansas City, Mo.

WANTED—Natl. Rcvr. NC100. State price and cond. Philip A. Harris, 217 Hereford Lane, Johnstown, Pa.

WANT—Audio Engineering magazine! Need Dec., 1948; Feb., March, Nov., 1949; Jan., 1952. R. H. Williams, M. S. C. Library, East Lansing, Mich.

FOR SALE—Rider's manuals 1 to 5, $6 ea., or $25 for all five. Frank Neidhart, 527 West 135 St., New York 31, N. Y.

SELL OR TRADE—Two good 250TH for coax relay or Lysco Antenna Tuner; auto radio, GE, model 230 with automatic foot control, $20. Joseph Lucca, 221-37 113th Drive, Queens Village 29, N. Y.

FOR SALE — Transmitting tubes never used; 250TH, two 100TH, two 814's, $50, lists for $98. Harry Pollins, Route 4, Box 142, New Brunswick, N. J.

FOR SALE—Radio and TV Repair Store, must sacrifice 11 years' estab. business due to illness. $700 walkout proposition, fixtures, stock, instruments. 1952 gross, $7,852.93. Rent $50 per month. Chas. E. Cook, 1701 Washington Ave., New Orleans 13, La.

FOR SALE—Speco sig. tracer 5 mos. old, $32; C-D condenser checker, bridge type, 6 mos old, only $18. Both in new cond. Manes Katz, 4024 Fairfax Rd., Baltimore 16, Md.

SELL OR TRADE—Feiler sig. tracer model TS3-K, like new, with oper. instructions, $20. Trade for Oak Ridge Substitution Tester, model 101. Kenneth Guthrie, 316 E 21st St., South, Newton, Iowa.

FOR SALE—Riders vol. 6, 9, 10, 11 in new cond., $25 takes all. Local sale preferred. F. E. Howarth, 24 Fairfax Ave., West Hartford, Conn.

SELL OR SWAP—IRE Proceedings, almost complete 1941 to present, for comm. rcvr. Henry G. Kuhn, 211 Frankhauser Rd., RFD 3, Williamsville 21, N. Y.

SELL OR TRADE—Port. Eastman Diathermy A-1 cond., best offer or trade for radio and TV test equip. B. Hiller, Sr., 7531 South River Rd., Marine City, Mich.

FOR SALE—Precision Electronometer and tube checker, model 700B, $20, or swap for good camera. Charles Ackenback, 552 East Main St., Amsterdam, N. Y.

FOR SALE—Power supply, 1000 v. DC 300 ma., two 866's, UTC, XFMRS, chokes, C-D capacitors, chassis mount, and all parts for 500 v. DC 200 ma. power supply. Francis King, 8166 Riverview SE, Washington 21, D. C.

TRADE OR SELL—Diathermy convertible to 800 w. class C amp., contains 2200 VDC, power supply, tunes to 11-meter band. Want radio, TV rcvr., Heath 0-7 scope, TS-2 TV align. gen., etc. S. Kravitz, 5019 Rover St., Phila. 20, Pa.

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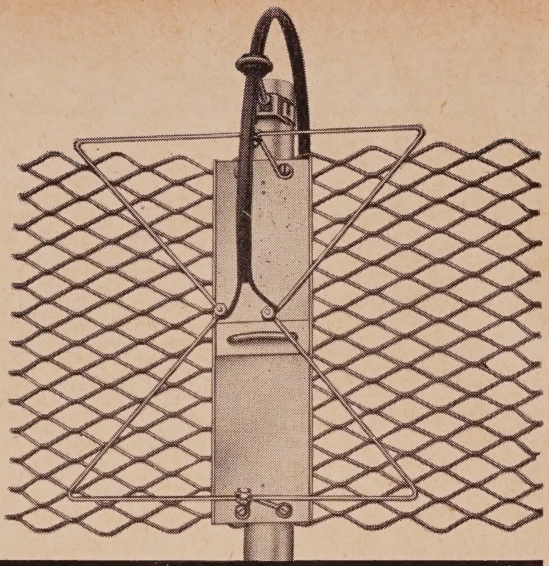

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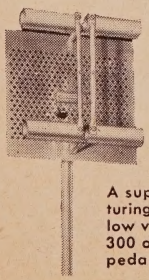

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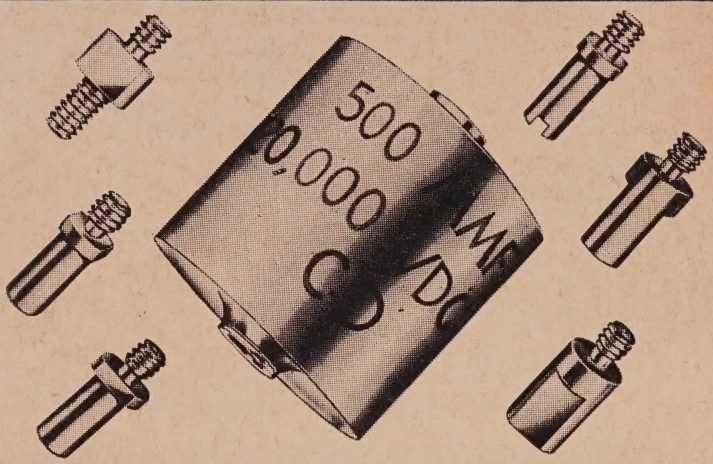

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